

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and the following remarks.

Claims 7-17 are pending in this application. By this Amendment, claims 2-6 are canceled without prejudice or disclaimer for filing in a continuation application and claims 7 and 13 are amended. No new matter is added.

The above amendments and following remarks are fully and completely responsive to the Office Action dated March 26, 2004. In this Office Action claims 4, 10, and 16 were indicated as containing allowable subject matter, but were objected to as being dependent upon a rejected base claim; claims 2, 3, 5-7, 9, and 11 were rejected under 35 U.S.C. 102(e), and claims 7-9, 11-15, and 17 were rejected under 35 U.S.C. 103(a). Applicant requests reconsideration of claims 7-17.

35 U.S.C. § 102(e)

Claims 2, 3, 5-7, 9, and 11 were rejected under 35 U.S.C. § 102(e) as being anticipated by Tsuyuguchi (U.S. Patent No. 6,469,858). The rejection of claims 2, 3, 5, and 6 has been rendered moot by the cancellation of claims 2-6. With respect to the rejection of claims 7, 9, and 11, the Office Action asserts that this reference teaches each and every element of the claims. Applicant disagrees and respectfully requests reconsideration of this rejection.

Claim 7, as currently amended, recites in part, "an externally fitted resistor... wherein the motor driver circuit limits a current supplied to the motor below a

predetermined limit value by comparing a voltage across the resistor with a single reference voltage.”

In contrast, Tsuyuguchi discloses a method that determines the limit value of the motor current (I_b) according to the result of comparison between one of three reference voltages (E1 to E3) and the voltage at one end of the current detection resistor 71 (see col. 8, lines 12-14 of Tsuyuguchi). The current detection resistor 71 is incorporated in the motor driver circuit 7 (see col. 8, lines 18-21 of Tsuyuguchi). As evidenced by the presence of power terminal 7a, it is clear that the current detection resistor 71 is incorporated in a chip. Accordingly, Tsuyuguchi does not teach or suggest an externally fitted resistor. Similarly, Tsuyuguchi does not teach or suggest comparing the voltage across an externally fitted resistor with a single reference voltage.

Tsuyuguchi also discloses a method of determining the limit value by switching the comparison value among three separate reference voltages, E1 to E3, depending on the weight of the disc that is loaded (see col. 8, lines 30-35 of Tsuyuguchi). The invention recited in claim 7 discloses a method of determining the limit value by using a single reference voltage and performing feedback control. Tsuyuguchi does not teach or suggest the use of a single reference voltage and performing feedback control in such a way that the voltage across the resistor is kept below the predetermined voltage.

Accordingly, Tsuyuguchi does not anticipate the invention recited in claims 7, 9 and 11. Specifically, Tsuyuguchi fails to teach and/or suggest the “externally fitted resistor” recited in independent claim 7. This reference also fails to teach or suggest “comparing the voltage across the resistor with a single reference voltage and

performing feedback control in such a way that the voltage across the resistor is kept below the predetermined voltage.”

Therefore, Applicant requests reconsideration and withdrawal of the rejection of claims 7, 9, and 11 under 35 U.S.C. § 102(e).

35 U.S.C. § 103(a)

Claims 7-9, 11-15, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuyuguchi et al. (U.S. Patent No. 6,469,858). In making these rejections, the Office Action asserts that this reference teaches and/or suggests each and every element of the claimed invention. Applicant requests reconsideration of these rejections.

Claim 7 recites in part:

An externally fitted resistor provided in a line by way of which electric power is supplied to the motor, wherein the motor driver circuit limits a current supplied to the motor below a predetermined limit by comparing a voltage across the resistor with a single reference voltage

Claim 13 recites in part:

An externally fitted resistor provided in a line by way of which electric power is supplied to the stepping motor, wherein the stepping motor driver circuit limits a current supplied to the stepping motor below a predetermined limit value by comparing a voltage across a resistor with a single reference voltage

The Office Action asserts that Tsuyuguchi teaches a “stepping motor (15), a motor driving circuit (7), a transistor (61) that is used to limit the current supplied to the stepping motor.”

Tsuyuguchi teaches, at col. 8, lines 11-13, "The current control circuit 20 includes a current control transistor 61 serially inserted in the stepper motor supply line 21 to act as a variable resistor." The Office Action contends it is obvious to one of ordinary skill in the art to modify the circuit arrangement by replacing the transistor with a variable resistor. However, the invention recited in independent claims 7 and 13 discloses an "externally fitted resistor." Tsuyuguchi fails to teach an externally fitted resistor.

Additionally, Tsuyuguchi teaches, at col. 8, lines 36-39, "the current control transistor has its resistance value changed in three levels according to the weight class of each disk loaded, causing the stepper motor current I_b to vary in as many levels." The invention recited in independent claims 7 and 13 "limits a current supplied... by comparing a voltage across the resistor with a single reference voltage."

Therefore, Tsuyuguchi fails to teach and/or suggest the claimed invention. Specifically, Tsuyuguchi fails to teach and/or suggest "an externally fitted resistor... wherein the motor driver circuit limits a current supplied to the motor below a predetermined limit by comparing a voltage across the resistor with a single reference voltage" recited in claim 7, and "an externally fitted resistor... wherein the stepping motor driver circuit limits a current supplied to the stepping motor below a predetermined limit value by comparing a voltage across a resistor with a single reference voltage" recited in claim 13.

Accordingly, Tsuyuguchi fails to teach and/or suggest the invention recited in claims 7-9, 11-15, and 17. Therefore, Applicant requests reconsideration and withdrawal of the rejection of claims 7-9, 11-15, and 17 under 35 U.S.C. § 103(a).

Claim Objections

Claims 4, 10, and 16 were objected to as being dependent upon a rejected base claim. The objection to claim 4 has been rendered moot by the cancellation of claim 4. Claim 10 is dependent upon claim 7, which is allowable for the reasons discussed above. Claim 16 is dependent upon claim 13, which is allowable for the reasons discussed above. Therefore, Applicant requests reconsideration and withdrawal of the objection to claims 10 and 16.

Conclusion

Applicant's amendment and remarks have overcome the objections and rejections set forth in the Office Action dated September 30, 2003. Specifically, Applicant's remarks have distinguished the claimed invention from Tsuyuguchi, and thus overcome the rejection of claims 7, 9, and 11 under 35 U.S.C. § 102(e); the rejection of claims 7-9, 11-15, and 17 under 35 U.S.C. § 103(a); and the objection to claims 10 and 16. Accordingly, claims 7-17 are in condition for allowance. Therefore, Applicant respectfully request consideration and allowance of claims 7-17.

In view of the above remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance of the claims is earnestly solicited. Should the Examiner believe anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicant respectfully petitions for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees, which may be required with respect to this paper or credit any overpayment to Counsel's Deposit Account 01-2300, referring to client-matter number 103213-00032.

Respectfully submitted,



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